



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,002	07/22/2003	Christof Ballweg	PD020069	3655

7590 08/30/2006
JOSEPH S. TRIPOLI
THOMSON LICENSING INC.
2 INDEPENDENCE WAY, Suite 200
P. O. BOX 5312
PRINCETON, NJ 08543-5312

EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/625,002	Applicant(s) BALLWEG, CHRISTOF	
	Examiner Christopher R. Lamb	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-4, 6, 8, 9, 11/1, 11/3, 11/4, 11/6, 11/8, and 11/9 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 11/5, and 11/7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 6, and 11/1, 11/3, 11/6 are rejected under 35 U.S.C. 102(e) as being anticipated by Ko et al. (US Patent 6,671,238).

Regarding claim 1:

Ko discloses a method of detecting a wobble signal, comprising the steps of:

comparing (Fig. 11) an input signal comprising the wobble signal (one of the two outputs of 200 in Fig. 11) with a reference signal (the other output of 200 in Fig. 11), the reference signal corresponding in phase and frequency to the desired wobble signal (at every point, one half of the signal detected by Ko is the desired wobble signal, because in Ko the edges of the track are modulated in such a way that at every point one side or the other is a modulated portion and the other side is a reference, carrier portion. See, for example, Fig. 4; column 5, lines 55-65; column 7, lines 35-50; column 8, lines 30-45).

outputting an output signal indicating the amplitude and the phase of the wobble signal (Fig. 12D, E, or F),

Art Unit: 2627

wherein the comparing step comprises the steps of:

generating a sum signal (Fig. 11: 204) and a difference signal (Fig. 11: 202) of the input signal and the reference signal; and

comparing the amplitudes of the sum signal and the difference signal to obtain the relative phase between the wobble signal and the reference signal (this is inherent to the sum operation: by taking the sum and difference, their amplitudes are being compared; that it obtains the relative phase is shown by the outputs, Fig. 12).

Regarding claim 3:

In Ko the comparing step further comprises the step of further processing said sum signal and said difference signal (clear in Fig. 11).

Regarding claim 6:

In Ko the comparing step further comprises the step of integrating said further processed sum signal and said further processed difference signal over a wobble period (the combined signals are fed into a LPF, 216, in Fig. 11; a low pass filter integrates a signal).

Regarding claims 11/1, 11/3, and 11/6:

These are apparatus claims corresponding to method claims 1, 3, and 6. Ko discloses an apparatus for performing the method (Fig. 11).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2627

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 6, 8, and 11/1, 11/3, 11/4, 11/6, and 11/8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (US 6,201,773) in view of Yoshimura et al. (US 6,100,724).

Regarding claim 1, 3, 4, and 6:

Aoki discloses a method for detecting a wobble signal (Fig. 8 or Fig. 9), characterized in that it comprises the steps of:

comparing (Fig. 8: the signals are multiplied) an input signal comprising the wobble signal (Fig. 8: "wobble signal") with a reference signal (Fig. 8: "delayed signal"), the reference signal corresponding in phase and frequency to the desired wobble signal (since it is the wobbled signal, just delayed one bit, it corresponds in phase and frequency);

and outputting an output signal indicating the amplitude and the phase of the wobble signal (Fig. 8: "low pass filter output").

Aoki does not disclose wherein the comparing signal comprises the steps of:

"generating a sum signal and a difference signal of the input signal and the reference signal; and

"comparing the amplitudes of the sum signal and the difference signal to obtain the relative phase between the wobble signal and the reference signal."

Yoshimura discloses a method of comparing a signal to a delayed signal (Fig. 3 and Fig. 4) in order to detect a phase difference (column 5, lines 8-11). Yoshimura's

Art Unit: 2627

method is digital rather than analog. Yoshimura discloses that analog processing is inferior to digital processing (column 2, lines 13-19).

As a part of the method, Yoshimura discloses:

(A) generating a sum signal and a difference signal of the input signal and the reference signal (Fig. 3: 22 and 26) and comparing the amplitudes of the sum signal and the difference signal (generating sum and difference signals inherently compares the amplitudes) to obtain the relative phase between the wobble signal and the reference signal (column 5, lines 8-11);

(B) further processing said sum signal and said difference signal (clear in Fig. 3 and Fig. 4);

(C) that the further processing comprises absolute value calculation (Yoshimura has a squaring circuit, Fig. 4: 32, but discloses that it may be replaced by an absolute value circuit to ease calculations in column 5, lines 34-36);

(D) integrating said further processed sum signal and said further processed difference signal over the period (Fig. 4: "Integrating Section": both signals have been combined together by this point but they are both a part of the signal that is integrated).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aoki to include the method of detecting phase differences taught by Yoshimura (which necessarily includes elements A, B, C, and D).

The motivation would have been to use digital processing instead of the inferior analog processing of Aoki, as suggested by Yoshimura.

Regarding claim 6:

Yoshimura does not disclose integrating said further processed sum signal and said further processed signal over the **wobble** period, because Yoshimura does not disclose wobbles. However, Yoshimura does state that the integrating section may integrate over a predetermined time (column 5, lines 21-25). Since Aoki's goal is to detect phase differences in a wobble period (as evidenced by, for example, Aoki Fig. 8), in Aoki as modified by Yoshimura it makes sense to integrate over the wobble period.

Regarding claim 8:

Aoki "calculates" the reference signal by delaying the wobble signal (Fig. 9: 42).

Regarding claims 11/1, 11/3, 11/4, 11/6, and 11/8:

These are apparatus claims corresponding to method claims 1, 3, 4, 6, and 8, and are similarly rejected over Aoki in view of Yoshimura.

5. Claims 1, 9, 11/1, and 11/9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maegawa et al. (US 6,345,018) in view of Ko.

Regarding claim 1:

Maegawa discloses a method for detecting a wobble signal (Fig. 9), comprising the steps of:

comparing an input signal comprising the wobble signal with a reference signal, the reference signal corresponding in phase and frequency to the desired wobble signal (column 10, lines 10-50: the reference signal is the carrier-wave signal; it corresponds in phase and frequency to the desired wobble signal because it is the ideal wobble signal without phase modulation); and

outputting an output signal indicating the amplitude and phase of the wobble signal (column 10, lines 10-50).

Maegawa does not disclose wherein the comparing step comprises the steps of "generating a sum signal and a difference signal of an input signal and the reference signal; and comparing the amplitudes of the sum signal and the difference signal to obtain the relative phase between the wobble signal and the reference signal." Instead, Maegawa discloses several other methods of comparing the signal (with a multiplier or a subtraction unit: column 10, lines 30-40).

Ko discloses a method of comparing two signals, wherein the comparing step comprises generating a sum signal and a difference signal of the input signal and the reference signal and comparing the amplitudes of the sum signal and the difference signal ((column 7, lines 35-50) to obtain the relative phase between the wobble signal and the reference signal (it determines if they are in phase or out of phase).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Maegawa wherein the comparing step comprises the steps of generating a sum signal and a difference signal of an input signal and the reference signal; and comparing the amplitudes of the sum signal and the difference signal to obtain the relative phase between the wobble signal and the reference signal, because the comparing step of Ko is used in the same environment, for the same purpose, and achieves the same result as the comparing steps disclosed by Maegawa (Maegawa already discloses the initial part of the apparatus can be used with any of several different

Art Unit: 2627

kinds of comparing steps: since Ko's comparing step is just as good, and achieves the same result, it is obvious to use it).

Regarding claim 9:

Maegawa discloses wherein the reference signal is stored in a table (column 10, lines 10-50).

Regarding claims 11/1 and 11/9:

These are apparatus claims corresponding to claims 1 and 9 and are similarly rejected.

Allowable Subject Matter

6. Claims 5, 7, 11/5, and 11/7 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of their respective base claims and any intervening claims.

The reason for the indication of allowable subject matter was discussed in the previous Office Action.

Response to Arguments

7. This section applies to Applicant's arguments filed July 28th, 2006.

8. Applicant's arguments, see page 6, with respect to the USC 112 rejection of claims 3-4 and 6 have been fully considered and are persuasive. The USC 112 rejections of these claims have been withdrawn; however, note that these claims have still been rejected as anticipated by prior art.

9. Applicant's arguments, see page 7, with respect to the 102 rejection of claims 1 and 8 as anticipated by Aoki have been considered but are moot in view of the new

Art Unit: 2627

ground(s) of rejection, Aoki in view of Yoshimura, which was necessitated by amendment.

10. Applicant's arguments, see page 8-10, with respect to the 102 rejection of claims 1 and 9 as anticipated by Maegawa have been considered but are moot in view of the new ground(s) of rejection, Maegawa in view of Ko, which was necessitated by amendment.

11. Applicant's arguments, see pages 10-12, with respect to the rejection of claims 1, 3, and 6 as anticipated by Ko have been fully considered but they are not persuasive.

Applicant argues that the instant application compares a wobble signal with a reference signal, whereas Ko compares a wobble signal with itself, and that these are not the same thing.

The Examiner respectfully disagrees. Ko compares half a wobble signal with a second half of the wobble signal. As shown in Fig. 4 of Ko, when reading from a land or groove, at any given time one wobbled border is a phase modulated signal (for example, LA11 in Fig. 4) while the other border is a carrier wobble signal (labeled "WOBBLE" in Fig. 4). This is further described in column 5, lines 55-65.

Thus Ko's split photodetector compares a phase modulated signal with a reference signal, the carrier wobble signal. Because the reference signal is a carrier wobble signal, it corresponds in phase and frequency to the desired wobble signal.

12. Applicant's arguments, see pages 12-15, regarding the 103 rejection of claims 3-4 and 6 over Aoki in view of Yoshimura have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

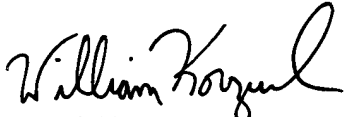
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

Art Unit: 2627

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Kőrzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 8/24/06


WILLIAM KŐRZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600